CITY OF HAYWARD

STAFF REPORT

AGENDA DATE 11/19/03

AGENDA ITEM 2

TO: Route 238 Working Group

FROM: Director of Public Works

SUBJECT: Transportation Analysis Results (Continued)

This meeting will continue to review the future year 2025 traffic conditions by looking at the modified project that takes less right-of-way (and less capacity) as well as an analysis of a flyover from WB I-580 to SB Foothill Boulevard. Attached to this agenda report is a revised copy of Transportation Analyses Report (minus chapters VI and VII) prepared by Dowling Associates. In addition to these variations, updated information will be provided on the "with project" scenario and travel time analysis for the project and no-project conditions as well as a presentation of typical pedestrian crossing details in the downtown area. The December 10 meeting will include a review of transit issues and pedestrian and bicycle issues, which will be covered in chapters VI and VII of the Dowling report. Those chapters will be distributed prior to the December 10 meeting.

Updated Project 2025 LOS Results

As noted at the last meeting, staff needed to look more closely at the intersections that were still LOS F with the project. Although it did not result in much change in LOS, staff's review of the "with project" traffic forecast at Foothill and Mattox uncovered an unexpected increase of 600 northbound right turns onto Castro Valley Blvd. over the no-project forecast, which did not make sense. Further review of the demand model analysis showed that because of extreme congestion on an existing stretch of single lane ramp onto I-580, the demand model was showing 600+ vehicles trying to go on Castro Valley Blvd and making an impossible U-turn to use a less congested on ramp. What this proves is this portion of the I-580 ramp needs to be two lanes, which is rather simple to accomplish and is now part of the project.

As noted at the last meeting, the new Calhoun/Jefferson/Mission intersection needed to be reviewed, since it should be better than the reported LOS F in the AM and PM with the project. Coding for both the eastbound and westbound movements were revised to include left turn lanes since, as a new intersection, this would be possible. This changed the LOS to D in the AM and C in the PM.

At the Harder Rd. and Tennyson Rd. intersections, staff identified signal changes that did result in LOS improvements. At Harder, the PM improved from LOS F to LOS E and the AM improved somewhat but is still LOS F. At Tennyson, the PM improved from LOS E to

LOS D and the AM improved from LOS F to LOS E. In the attached Exhibit A, revised LOS results are shown in italics.

No-Project and Project Travel Times

Based on the latest project configuration, Dowling Associates used the VISSIM software to simulate 2025 travel in the corridor for both the no-project conditions and the with project conditions(travel times for the reduced ROW scenario will be provided on December 10). As was done for the LOS calculations the output of the travel demand model was reduced by 5 percent to represent the expected peak hour spreading as incorporated in MTC's model. The attached Exhibit B shows the travel time results in tabular form in comparison to the existing travel times previously reported and Exhibit C shows the travel time for each of the four segments in the corridor. In can be seen that without the project there is a significant increase in travel time due to the growth in congestion over the next 25 years. The project significantly reduces this increase in travel time but cannot reduce it to present day conditions.

Traffic Analysis Results of Flyover Scenario

In order to determine the effect of adding a two-lane flyover ramp from WB I-580 just east of Strobridge to southbound Foothill north of Grove Way, the Hayward demand model was rerun under the project scenario but with just the addition of this ramp (a similar flyover ramp had been proposed as a later component of the Rt. 238 Bypass Project). In order to properly model this ramp, our prime consultant developed a conceptual design for the ramp, which since it comes from an Interstate Highway, will definitely be required to meet Federal Highway Administration (FHWA) standards. At the working group meeting, we will be able to review a display of the concept design (see Exhibit D) and some of the problems in meeting minimum FHWA slope standards.

To understand how the flyover addition would affect traffic in the corridor, the Hayward demand model was used to create a difference plot between the project and the project with flyover. Exhibit 8 on page 15 of Dowling's Transportation Analysis Report displays this difference plot for the AM peak period. As one would expect, there is a much less significant effect in the PM peak period. Those routes with red bars represent increased vehicle volumes due to the flyover while green routes represent reduced vehicle volumes. As expected, the ramp carries a lot of traffic (1510 vehicles); however, because these are generally trips that would have accessed the corridor some other way, the impact on intersections in the corridor is mostly north of A Street. In the AM, there is a significant decrease in the predicted trips that would use the Strobridge to Grove route to southbound Foothill. Our traffic consultant indicates that the apparent switch in the volume of traffic using A St. versus B St. is most likely a recurrence of the instability staff had noted in previous model runs because these two parallel routes are so congested. The program in effect oscillates between the two and can give inconsistent results.

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Traffic Results of the Reduced ROW Scenario

The reduced ROW Scenario involves a smaller right of way requirement. However, it includes the grade separation and thus has the same right of way impacts from D St. to

Fletcher and through Watkins. In the rest of the corridor from City Center Drive to Harder Road, instead of adding a lane in each direction in addition to the parking lane, capacity is only added by the no peak hour parking restriction that creates one lane in each direction throughout the corridor. While south of Fletcher it does seem possible to remove parking, narrow the sidewalk, and provide the travel lane, that is not true in the downtown area from A to D Streets. The City is presently pursuing adding left turn lanes at B and C Streets to provide better access to the downtown. Adding these turn lanes requires removal of the parking on both sides of the block and a portion of the blocks to the north and south**.** The project scenario adds turn lanes for each of the downtown streets that presently do not have them, since this is a critical improvement for access to the downtown. To just add the one parking lane of capacity in each direction in the downtown area between A and D Streets would still require right of way and would likely result in the same number of full takes. Exhibit E shows what the lane configuration and right of way would need to be in the segment from City Center Drive to C Street.

To analyze this scenario, the Hayward demand model was again used to develop a traffic forecast for 2025 with the reduced lane configuration. Again, to understand how the reduced right of way scenario would affect traffic in the corridor, the Hayward demand model was used to create a difference plot between the project and this scenario. Exhibit 7 on page 14 of Dowling's Transportation Analysis Report displays this difference plot for the AM peak period. As expected, the middle portion of the corridor carries less traffic as seen by the width of the green lines, but what also occurs is the redistribution of traffic to other parallel streets shown red, such as Whitman and Calaroga that generally are not intended to accommodate such major through traffic.

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The Hayward demand model was then used to calculate the other measures of effectiveness between the various scenarios that were discussed at the last meeting for the no-project and project conditions. Exhibit 6 on page 12 of the attached Dowling report now also includes a comparison of this reduced right of way scenario and the with flyover scenario for Vehicle Miles Traveled (VMT), Vehicle Hours Traveled (VHT), average speed, and miles of congestion. To clarify a question raised at the last meeting, all of these measures are for the entire area shown on the difference plots, such as Exhibit 7 mentioned above. The number of total miles of streets and freeways in this same area are also now shown on this exhibit. It can be seen that the VMT results are essentially the same for all scenarios since the model only redistributes the projected demand. The VHT, average speed, and miles of congestion are very close for the project and project with flyover scenario as one might expect. Also, as one might expect, the reduced right of way scenario produces less savings in VHT (738 versus 1044 hours) and somewhat less reduction in miles of congestion (14.1 versus 22.7 miles) than the basic project scenario in comparison to the no-project.

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To develop similar LOS measures for the reduced right of way scenario, the results of the 2025 demand model traffic forecast were again run through the same process as used for the project and no-project scenarios. The percent change in intersection demand along the corridor can be seen in Exhibits 18-19 on pages 32-33 of the Dowling report. Overall, the reduced right of way scenario has about 6 percent less intersection demand than the basic project. Since the reduction in capacity for the segments with one less lane in each direction is between 20 and 25 percent, you would expect to see this scenario have significantly lower

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levels of service than the with project scenario but somewhat better than the no-project. The LOS results for the reduced right of way scenario are indicated in Exhibit 13 on page 22 of the Dowling report and are shown in a simplified table (attached as Exhibit F**)** that also includes both the no-project and project results.

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Typical Pedestrian Treatment Under Project Scenario

Crossing the 10 lanes of traffic that will exist in the downtown under the project scenario will certainly be challenging. To accommodate all the traffic demand as well as pedestrians, it will be necessary to have sufficient median width to provide an area for pedestrians to wait in case they cannot make it across the entire street in one signal cycle. In order to give some sense of safety in this median area with so much traffic on either side and to accommodate pedestrian handicap ramps, a minimum width of 20 feet would be recommended. Exhibit G shows A St. as a typical intersection where pedestrians are permitted to cross.

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Attachments: Exhibit A: Revised With Project LOS Results
Exhibit B: Travel Time Comparison of Existing/No Project/Project
Exhibit C: Segment Project Travel Times
Exhibit D: WB 580 to SB Foothill Flyover Concept
Exhibit E: Reduced ROW Scenario City Center to C Street
Exhibit F: LOS Comparison of No Project/Project/Reduced ROW
Exhibit G: Typical Pedestrian Crossing
Dowling Transportation Analyses Report (November 13, 2003)